

Abstract

The invention relates to a vibration generator for seismic applications comprised of a housing, in which are accommodated coils activated with AC current or electric pulses, and which is coupled to the object to be investigated via coupling elements. The invention addresses the problem of providing a readily portable and easily wieldable vibration generator, with which vibrations for geophysical explorations of near-surface subsoil structures can be carried out up to a depth of approximately 150 meters. The invention comprises that in the outer housing of the vibration generator an inner housing is accommodated, that the outer housing supports two coil cores on opposing sides, on each of which one coil is displaceably supported, and that the two coils are connected through the inner common housing, with both coils being activated with electric energy alternating in time. If one coil is activated continuously alternating initially with the positive wave component of an AC current control signal and the other coil with the negative wave component, a force-controlled vibration motion of the reaction mass results as a function of the applied AC current frequency. The same effect is obtained with the alternate application of a DC voltage to the two coils. Via the law of action and reaction, this motion is transmitted to the coupling element and in this way permits the introduction of the vibration motion into the object to be investigated. In contrast to the moving coil system conventionally used for electromechanical vibration transduction, the system according to the invention is based on the functional operation of a soft-iron instrument. To generate a motion in the opposite direction, two of these function elements are combined oppositely connected.